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SCIENCE NEWS LETTER

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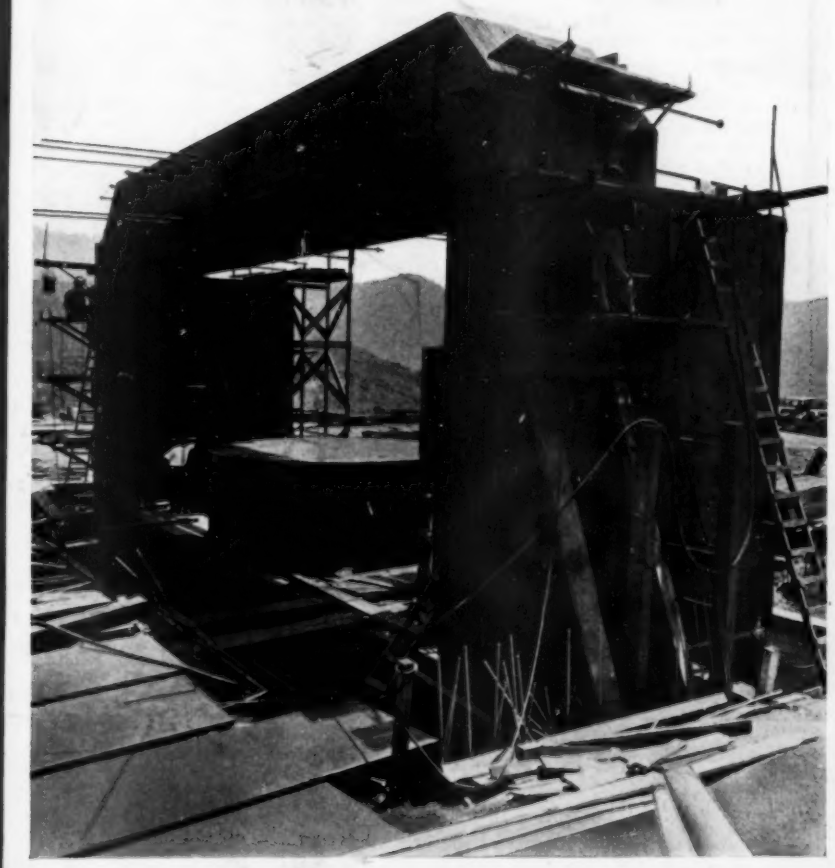
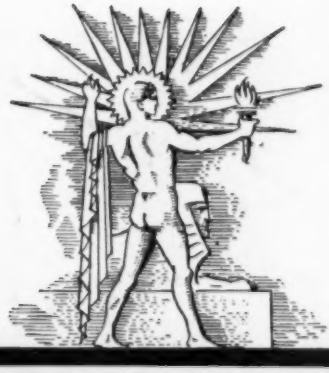
THE WEEKLY SUMMARY OF CURRENT SCIENCE •





July 19, 1941

Cyclotron

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A SCIENCE SERVICE PUBLICATION

Do You Know?

Soy grits, a coarse soy flour, is being used in dehydrated soups for the Army.

New-type *tanning* extracts are said to make kid shoes more resistant to scuffing.

Silver fox farms in the United States produced 6,000 pelts in 1923, 350,000 in 1940.

Tests are expected to show whether *sulfuric acid* recovered from waste pickle liquor is useful in cleaning iron and steel surfaces.

The United States imported almost 100,000,000 pounds of *tung oil* in 1940, and southern states produced about 5,000,000 pounds.

The U. S. Army will acquire 45 *midget locomotives*, weighing only 20 tons each, yet able to pull 15 loaded freight cars at 15 miles per hour.

Citric acid, which gives lemons and oranges their sourness, is also present in cranberries, currants, strawberries, raspberries, and many other fruits.

A minor import which the United States once got from Germany is *Vandyke brown*, obtained mainly from lignite ocher deposits in that country.

Retiring from government service at 71 years of age, Dr. Harry C. Oberholser, a noted *bird expert* of the U. S. Fish and Wildlife Service, has written 800 technical and popular publications on birds.

QUESTIONS DISCUSSED IN THIS ISSUE

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

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VITAL STATISTICS
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Japanese beetles have spread into 22 states.

Largest of fishes is the rather peaceable, mouse-colored *whale shark*, that grows up to be 50 feet or longer.

By a new method, a *pearl* necklace can be X-rayed in a minute, to determine whether it is made of natural or cultured pearls.

A baby *dolphin* can swim and keep up with its elders as soon as it is born.

An *all-glass* adhesive tape is said to have many industrial uses, such as electrical insulation.

The New York *Zoo* has established an Africa-in-the-Bronx, grouping 20 kinds of African animals in a roomy African plains setting.

SCIENCE NEWS LETTER

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MILITARY SCIENCE

Rolling Service Is U.S. Army Invention For Battle Front

Quartermaster Corps Providing for Morale and Efficiency Under Fire by Facilities for Cleanliness and Repair

ROLLING service is the newest invention of the Quartermaster Corps of the U. S. Army to make men at a fighting front cleaner and more comfortable.

In thick of battle, soldiers can't fight all the time. Shoes wear through. Insects—maybe the World War cootie—get into clothing. Tired fighters want a bath and wish they were on Main Street where you could buy a bottle of pop.

So, at the Quartermaster Replacement Center, at Camp Lee, Va., officers have just given the feminine press a view of new rolling shops which have been undergoing testing and improvements, and are ready to roll to Florida and other maneuver locations to prove usefulness "under fire." The mobile units, as the Army calls them, are on trucks and tractor-drawn trailers. They can be rolled to within 1,000 yards of a fighting line.

No other country has devised a rolling service of this type, so far as Quartermaster officers have heard. Canadians have inspected the U. S. Army's new idea with interest.

A walk through the shoe repair shop on wheels shows both walls ranged solid with stitching machines, whirring polishers and tools, and in between, somehow working at top speed, two rows of busy shoe repairers. In tests, the Army's trained workers have hit a high speed record of repairing 200 pairs of shoes in a day, in these quarters, and, says a Colonel, the work was good.

Besides shoes, the mending shop can also tackle emergency repairs to uniforms at a front. "Seamsters" is the name coined for the Army's masculine clothing menders by one officer casting about for a word similar to seamstress to describe this job.

Thirty-two selectees have been learning to operate the first mobile sterilization and bath unit. The Army describes it more informally as "the latest offspring of the old 'de-louser' so familiar to boys of the AEF."

This trailer has six showers on each side, mounted on a porch-like extension of canvas. The men throw their clothes into the sterilizer which is inside the trailer itself and then take a shower. The steamed clothing goes on to a mobile laundry and the men get clean clothes as they leave the bath house.

The mobile laundry is another workshop on wheels, mounted with washing machine, surplus-water extractor, and two steam-heated tumblers to dry the clothes. A unit like this can handle a batch of clothes every half hour. At a fighting front, clothes are not ironed.

To aid morale of troops at a front, the Quartermaster Corps has designed a store on wheels to sell toilet articles, candy, cigarettes and cold beverages.

All of this equipment, officers emphasize, is not for men in permanent camps, where shop work and services are housed with more elbow room. These are fighting line units, part of America's preparedness.

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MEDICINE

Send Soldiers More Candy, Fewer Cigarettes

HERE is good news for candy and chocolate bar manufacturers and bad news for cigarette manufacturers. The frequency with which stomach ulcers have developed in the Canadian Army has led the editor of the *Canadian Medican Association Journal* (July) to suggest that friends and relatives of soldiers should send them malted milk tablets, candy and chocolate bars rather than "deluge" them with cigarettes.

"Peptic ulcer is undoubtedly the major cause of illness in the Army," he declares.

While it is debatable whether smoking increases stomach acidity and thus increases the tendency to develop ulcers or aggravate them, most doctors advise their ulcer patients not to smoke, he points out, adding that athletes in training are denied tobacco on the ground that its use lessens stamina.

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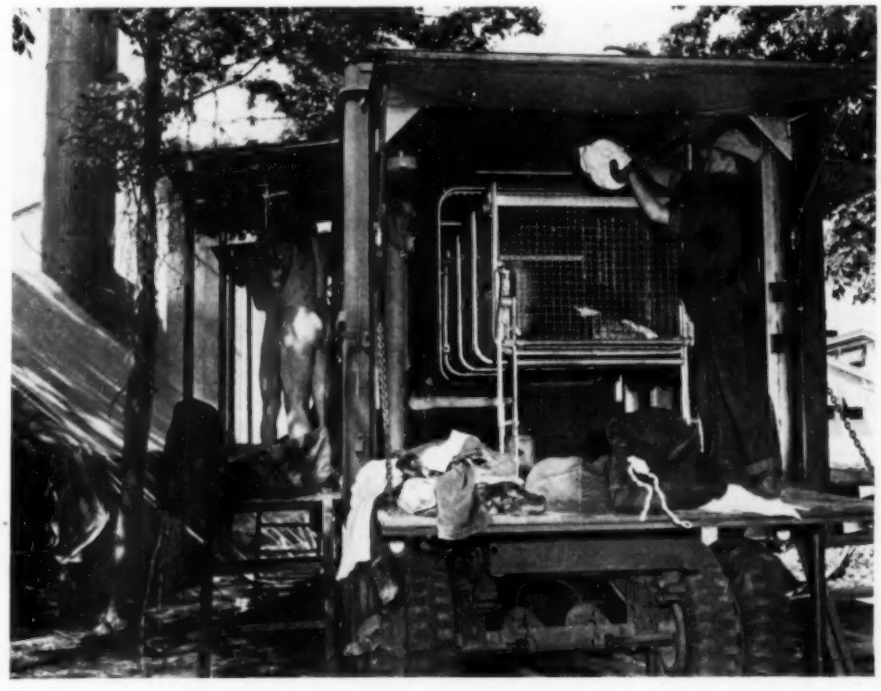

BATHS FOR SOLDIERS

This mobile unit will roll right up to the front. Soldiers hot, tired, soiled and possibly insect troubled can toss clothes into the sterilizer and then step under a refreshing shower. Clean clothes are issued to the men as they leave the shower.

RADIO

"Searchlight" Radio Beams Increase Station's Range

WITH "steerable" radio antennae that send out radio transmission in a searchlight beam instead of broadcasting it, modern radio transmitters of 50,000 watts are able to make themselves heard in distant countries at the same intensity as a 1,200,000-watt transmitter with the older type aerials.

Engineers of the National Broadcasting Company call this one of the great modern advances of radio, which is permitting it to play so important a part in this war. They say that even though heavy penalties are imposed on those caught listening to foreign broadcasts in the oppressed countries of Europe, mail reaching the United States provides proof that these broadcasts are reaching interested ears.

From early morning to late at night NBC transmitters at Bound Brook, N. J., are sending out programs to the world, shooting them in the proper direction, in the correct language, at hours best adapted to the regions reached. With 100 degrees span between the direction of Mexico City and that of Pernambuco, a number of antennae are required to reach Latin America. A much smaller number suffice for Europe, with a span of only 30 degrees from Madrid to Moscow.

Science News Letter, July 19, 1941

AGRICULTURE—RESOURCES

Select Superior Tung Trees For Cultivation in South

SUPERIOR varieties of tung trees, source of the tung oil highly valued in the paint and varnish, linoleum, printer's ink and other industries, are being given an extensive test by the U. S. Department of Agriculture. Because the Chinese war has drastically reduced imports from the principal source of this oil, while domestic plantings now in existence supply only a very small percentage of American requirements, new sources within United States boundaries are very seriously needed.

Department scientists caution that tung cultivation should not be undertaken by amateurs, and it should not be attempted on a large scale even by experienced planters of other crops. Tung trees are very "fussy" about their soil, highly sensitive to cold, and in any case must reach the age of five years before they come into bearing. Still, any farmer far enough south (within about 100 miles of the Gulf Coast) might find it profitable to set out a few trees, just as an experiment. Tung trees are quite ornamental, with glossy, heart-shaped leaves and beautiful flowers in spring.

Department of Agriculture plant scientists have, during the past three years, selected 500 trees in the extensive orchards already growing in the South as particularly promising. A second selection reduced the number to 80. Thousands of young trees were propagated from this group of parents. Last November's freeze cut down the nursery stock severely, but the survivors—some 40,000 of them—have been planted in 13 test orchards along the Gulf Coast, from Texas to Florida.

In the meantime, chemists in the Department have greatly improved the efficiency of oil extraction methods. American tung oil already commands a premium over the imported product, and the market is far from being saturated.

Science News Letter, July 19, 1941

PUBLIC HEALTH

Warn Against Substituting Cadmium For Tin in Trays

WARNING against war-increased danger of acute poisoning from cadmium-plated food utensils, such as metal pitchers and refrigerator ice trays, appears in a report by Dr. Samuel Frant and Irving Kleeman, of the New York City Health Department. (*Journal, American Medical Association*, July 12.)

They report several outbreaks, involving about 50 persons, of acute poisoning from small amounts of cadmium that got into iced drinks and frozen desserts from ice cube trays and a metal pitcher that had been replated with cadmium. Fortunately, no one died, although all those who had the contaminated foods became violently ill within 15 minutes.

The ice cube trays had not had any cadmium on them originally, according to the refrigerator manufacturers' reports, but had apparently been coated with cadmium during reconditioning. In one outbreak, ice cubes for cooling punch had been made shortly after a leak of the refrigerant, sulfur dioxide, had been repaired. The sulfur dioxide dissolved in the water to give sulfurous acid which reacted with the cadmium to give cadmium sulfite. In other cases the cadmium got into the food from the action of acids in flavored crystals for making fruit drinks or in gelatin powders for frozen desserts.

Because of defense preparations, the plating industry is seeking substitutes for tin and other war-needed materials. The New York scientists warn that cadmium is not a suitable substitute in plating food utensils. The New York City sanitary code has already been amended to prohibit the use of cadmium in articles used for food and drink.

Science News Letter, July 19, 1941

NUTRITION

British Public Demands Pickles—and Gets Them

PICKLES are so insistently demanded by the British army, navy, air force and civilian public that several thousand acres of land are being planted this year with onion, garlic, mustard, gherkins, red cabbage and cauliflower.

"Will science say the decision is wrong?" Dr. Magnus Pyke, puts the question, discussing vegetables as food in *Nature* (April 26).

Dr. Pyke points out that suggestions of the Scientific Food Policy Committee have been followed to assure a supply of green vegetables the year around. Double acreage of carrots is planted. Greenhouses have abandoned flower growing to produce tomatoes.

But with all this, adds Dr. Pyke, Britons are "insistently crying out for a vegetable product of negligible value, namely pickles." So the British public will get them.

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ASTRONOMY—RADIO

Hydrogen Eruption on Sun Disrupts Radio on Earth

Most Violent Flare-Up of Last Two Years Coincided With Paralysis of Communication on July 4 and 5

A BRILLIANT eruption of hydrogen gas from a group of spots near the center of the sun's disk was revealed for the first time on July 9 upon examination of a roll of motion picture film taken of the atmosphere of the sun at the 65-foot sun-tower telescope of the Mount Wilson Observatory. The eruption began to develop about 7:10 a.m., PST on July 3 and attained maximum brightness about 8:30 a.m., after which it slowly declined. The eruption, which was the most violent recorded during the last two years, was not found sooner owing to the fact that the motion pictures are taken automatically and the reel developed and examined after each 100 feet of film has been exposed.

It was established five years ago, when the effect first began to be intensively studied at the instigation of Dr. J. H. Dellinger, radio chief of the National Bureau of Standards, that such brilliant outbursts are the direct cause of sudden fadeouts in short wave wireless signals which have paralyzed communication over the entire daylight side of the earth. The severe disturbance in communications on July 4 and 5 are typical of effects attributed to sunspot activity.

It is believed that the visible radiation from the bright outburst, although spectacular to behold, is of no effect on radio signals. The fadeouts are caused by invisible ultraviolet radiation from the eruption which suddenly produces intense ionization in a layer of the earth's atmosphere at a height of about 60 miles. This layer now absorbs the radio waves instead of allowing them to be reflected on to the receiving station.

Owing to the approach of the minimum of the sunspot cycle expected about 1944, sunspot activity and the accompanying bright eruptions have been growing much scarcer lately.

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FOR CYCLOTRON

The steel for the giant cyclotron magnet for the University of California is now about 65 per cent in place. Progress can be seen in this photograph. The final disks for the pole face are not yet in place. The one on which the two physicists are sitting is actually two half disks, a faint line betraying the split. It would be very expensive to procure and handle whole disks of this size. Each half disk weighs about eleven tons. In the foreground, one of the supervisors is inserting thin steel shims to fill up what cracks there are between the lower construction formed of 2-inch plates and the first half disk. On the front cover is a view of the whole construction.

ASTRONOMY—RADIO

Bureau of Standards Radio Records Show Effect

WITHIN five minutes of the time that a hydrogen eruption on the sun was recorded at the Mt. Wilson Observatory in California, a definite fadeout of radio signals received in Washington from Toronto was recorded at the National Bureau of Standards.

Though such records are ordinarily studied only monthly, T. R. Gilliland, of the Bureau's Radio Section examined them for July 3, date of the eruption, at the request of Science Service. He found that, within five minutes after the eruption began on the Mt. Wilson film, the intensity of the Toronto signal dropped nearly to zero for about five minutes. Then it recovered, but later in the morning it dropped again, and remained down for about two hours.

Mr. Gilliland said that storms in the ionosphere, such as caused the second fadeout, are often associated with the sudden fadeouts due to the hydrogen eruptions. There was also an effect in the measurements made every half hour of the echo of signals sent up to the ionosphere, which is the reflecting layer for radio waves. At 10:00 a.m. EST (7:00 a.m., PST) ten minutes before the beginning of the Mt. Wilson record, the echo from the ionosphere was weak, and at 10:30 it was very weak. Perhaps it had fallen off completely in the interval. By 11:30 and 12:00 it was out entirely.

He reported that on July 9, nearly a week later, there was still some disturbance in the reception of these radio signals.

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A new soft white *fluorescent lamp* has been produced for lighting restaurants and shops where standard white fluorescent lamps distort some food colors strangely.

HOME ECONOMICS

Defense Fashions

Beltsville Becomes the Paris of America-at-Work as Agriculture Experts Design for Factory and Farm

By EMILY C. DAVIS

TAKE a good look at the name, Beltsville, because American women—millions of them—will soon be wearing Beltsville-created fashions when they do defense work in factories and farms.

The Paris of America-at-Work—that's Beltsville—a scientific Paris.

From a neat brick office, in the midst of broad fields of an Agricultural Experiment Station, are beginning to appear the government's scientifically designed working styles.

Designs have been originated for one-piece slacks, jumpers, visored caps for the girl in industry.

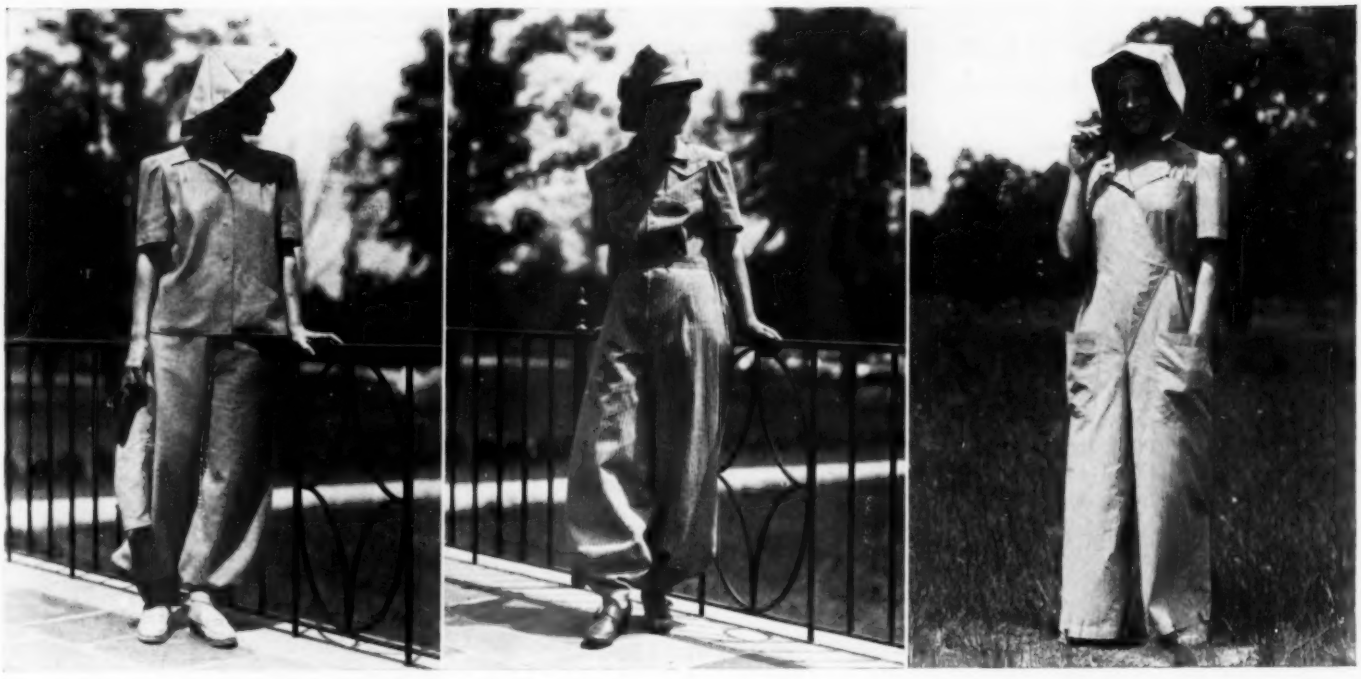
DEFENSE MODES

Superimposed on the Chinese hat pattern are sketches of other clothes created for efficiency and becomingness by government clothes experts at Beltsville. Left, two factory outfits; a mechanic's suit with visored cap and a jumper slack suit. Right, for farm wear, a field suit for heavy work made with detachable sleeves and loose hanging jacket, and the Coverette outfit, sketched in the Department of Agriculture's first published circular on new defense work styles.

LAY ONE FOLD ON STRAIGHT OF THE GOODS

Directions

To introduce a novel Chinese-style work hat of the 1941 defense fashions, here is a pattern of two segments. Duplicated seven times, they make a circle. To make the hat, cut two circles of goods about 21 inches in diameter. Pinning them together, measure the circle into 14 pie segments, using the pattern, and placing one segment line on the straight of the goods. Cut out two segments. Stitch through the dividing lines of the remaining segments and seam the pie together, forming a broad cone with 12 triangular casings into which cardboard triangles may be placed for stiffening. To hold the cardboard in place, attach enameled snap fasteners near the rim of each segment. Inside, fasten tie strings, half an inch wide, at the peak of the crown and about three inches on each side.



BELTSVILLE STYLES

The girl at the left is wearing a Chinese hat designed for farm and garden but equally good for sun bathers. Her suit is suitable for fruit picking or other reaching jobs; detachable sleeves will protect from briars. The outfit in the center is for America's girl mechanics. At the right is sunbonnet Sue, 1941 version. The new Coverette suit is of green and white seersucker, easy to slip into hurriedly.

Surplice slacks, Chinese hats, utility aprons and showerproofs for the lass who milks cows and raises tomatoes have been invented.

Streamlined housedresses in prospect.

In June, in Chicago, a parade of models exhibited the first of the government's work fashion creations before the expertly critical American Home Economics Association. But that is only a beginning, for the defense fashion designers have scarcely launched into possibilities of women's work outfits based on shorts and culottes or divided skirts, and conventional length skirts. First styles emanating from Beltsville are mainly slack garments.

"Lots of kinds of work clothing, not definite uniforms, are needed for women in the United States," says Miss Clarice L. Scott, who is creating the country's first functional fashions for farm women.

Her co-worker, Miss Margaret Smith, is specializing in designing a variety of clothes for industrial jobs.

Girls of the sewing staff of the research laboratory are credited with contributing good ideas. They have their say when fashion designers Scott and Smith try on a "brain child" and parade it for staff approval.

America's workaday Paris is, in terms of government organization, the Clothing and Textile Division of the Bureau of Home Economics. And the Bureau of Home Economics, in turn, is a branch of the U. S. Department of Agriculture.

There are too many climates and too many kinds of jobs in our big country for a few chosen uniforms to solve America's what-to-wear-to-work problem, Miss Scott explained in an interview. Some jobs require girls to sit all day, others to stand. Making parachutes, some girls work on hands and knees.

The government's idea is to evolve as many types of work garments as possible, and leave it to factories and individuals to fit the new working styles to their needs.

Pattern manufacturers have already begun arranging with the department to receive sample garments from which they can prepare paper patterns. Probably ready for sale this month will be a paper pattern for Miss Scott's invention of a Coverette for farm women to wear at work. Mail order houses and manufacturers are inquiring about the new styles, with a view to ready-mades.

The government's work style designers expect eventually to write a bulletin so that home dressmakers, too, can make the styles.

Meanwhile, an information circular has already been produced for public distribution by the Department of Agriculture, Washington, D. C., with sketches and directions for making some of the garments. The hope is that the scientifically designed work styles will be as widely useful as possible. Dressing for efficiency and comfort can aid America's defense efforts, say Miss Scott and Miss Smith.

As samples of what women may find suitable for factory work, Miss Scott displayed two models.

"This one-piece suit," she said, holding up a pink and white striped cotton outfit, "has slacks with a loose fit at the ankle, so that the worker has plenty of leg room and the trouser cuff will not hang loose to drag into grease or catch on machinery. Slide fasteners provide quick dressing aids, at side and neck."

This factory outfit, suitable for the girl mechanic, has a hip pocket like a man's overalls, and two pockets in the blouse front are made with a little pleat so that they expand like a grocery bag, to hold small articles. All of these pockets, Miss Scott pointed out, snap securely.

Pockets, as Miss Scott and Miss Smith set our work fashions, will be part of almost every feminine work outfit. Working on an industrial job, a girl may want to have her handkerchief, compact, change purse, or other possessions handy. In some factory jobs, pockets are useful for tools. On the farm, pockets hold clothes pins, seed packets, trowel, to name just a few items.

"We have tried," said Miss Scott, "to arrange all pockets (*Turn to page 44*)

LAY ONE FOLD ON STRAIGHT OF THE GOODS

MEDICINE

Spoiled Sweet Clover Has Anti-Blood Clot Chemical

A CHEMICAL from spoiled sweet clover may replace heparin, anti-blood clotting agent which has itself only been available for practical uses within the last two or three years, Dr. H. R. Butt, Dr. E. V. Allen and Dr. J. L. Bollman, of the Mayo Clinic, report as a result of first trials of the new chemical.

The new anti-blood clotting substance is the chemical responsible for an often fatal bleeding disease of cattle that have eaten spoiled sweet clover. It is a coumarin compound which was isolated and prepared synthetically by Prof. Karl Paul Link and associates at the University of Wisconsin.

Advantages of the new remedy are is effectiveness when given by mouth, its prolonged action in lengthening the clotting time of the blood, and its cheapness. More studies are needed, the Mayo Clinic doctors state, to determine fully the usefulness of this coumarin compound and how best to give it to patients in danger of developing blood clots that may threaten life by plugging important blood vessels.

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PSYCHOLOGY

Timing Breaks Down First When Skilled Workers Tire

TIMING is the first thing to go wrong when workers at highly skilled tasks get tired, Prof. F. C. Bartlett, noted British psychologist, says. (*Nature*, June 7.)

"Until a state of great fatigue is reached," he said, "it is far more likely that the right actions will be performed at the wrong times than that the wrong actions will be performed. If accurate timing is insisted upon, gross mistakes of action may appear."

The worker at such highly skilled tasks is, unfortunately, unaware when his work deteriorates with fatigue. He is likely to think he is doing better work, Prof. Bartlett found, because he becomes more and more lenient in his judgment of what errors are significant.

When he does recognize an error, the fatigued workman is likely to blame it on conditions or on the interference of other people.

The fatigue that comes from highly skilled work makes the worker "forget" details not closely organized with the main part of his work. Yet at the same time, he is more easily distracted by things that have nothing directly to do with the task. Bodily sensations, such as hunger or thirst, become more pressing and insistent and affect the performance of the worker.

Previous psychological studies of fatigue have not revealed the effects of fatigue from skilled work, because they have been based on the repetition for a long period of simple, easy tasks such as the naming of colors or the working of easy arithmetic calculations.

The kind of fatigue resulting from doing such simple tasks over and over is not the same, Prof. Bartlett said, as that which comes from skilled jobs, particularly those involving difficult mental work.

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PHYSICS

Gets Patent for Heater Using Sun's Rays

COOKING by the sun's rays may be made easy with a new invention just granted U. S. Patent 2,247,830. It was issued to Dr. Charles G. Abbot, secretary of the Smithsonian Institution, who has for a number of years been experimenting with methods of using directly the energy from the sun.

One object of the invention, given in the patent specifications, is "to provide a novel solar heater which is highly efficient, compact, cheap to manufacture, durable and easily used by the inexperienced." Another is that it "may be made of any desired small size without decreasing the efficiency."

To collect the sun's rays there is a metal mirror, bent to the shape of a parabola. Its long direction is parallel to the axis of the earth, and there is a clockwork to turn it during the day to follow the sun. In this mirror, where the solar rays are sharply focussed on it, is a double-walled glass tube, through which circulates a black liquid with a high boiling point. This absorbs the rays and is heated. The hot liquid then circulates through an oven at the upper end of the device, so that it may be used for cooking.

Paradoxically, Dr. Abbot suggests that the heater may be used for cooling. With a refrigerator of the non-mechanical type in which the heat of a gas flame provides the operating energy, the heat from the cooker may be used instead.

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IN SCIEN

GENERAL SCIENCE

University of Poznan Now University of Posen

THE once Polish University of Poznan has now become the University of Posen, reopened this summer under German direction and for German students, according to a brief report from the Nazi capital which has just reached the United States. The city of Poznan is in the western part of Poland, which has been set aside for permanent and total German occupation; Posen is the German spelling of its name. Its university is one of the newest in Europe, dating only from immediately after the close of World War I. Before the outbreak of present hostilities, it had a student body of something more than 5,000.

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BIOLOGY

10,000 Human Offspring By Artificial Insemination

A RECORD of nearly 10,000 American children brought into the world with the aid of the proxy-father procedure technically termed artificial insemination is reported by Dr. Frances I. Seymour and Dr. Alfred Koerner, of New York, (*Journal, American Medical Association*, June 21). The figures were collected through a survey sponsored by the National Research Foundation for Eugenic Alleviation of Sterility, Inc.

The central and Atlantic seaboard sections of the United States have the greatest number of children sired by artificial insemination. Donors were used in 3,649 of the 9,489 pregnancies.

More than 97% of all the pregnancies resulted in living, normal babies. The number of miscarriages and abortions was only one-fifth the rate among women achieving pregnancy without the aid of artificial insemination. More than 1,000 mothers had more than one baby with the aid of this method.

More than 400 surgical operations of the type frequently performed on mothers to sure sterility were prevented.

Science News Letter, July 19, 1941

E FIELDS

MEDICINE

Response to Doctors For Britain Request Lagging

RESPONSE to the request of the British Red Cross for "Doctors for Britain" has been lagging. The original request, made some months ago, was for 1,000 physicians, but, although more than 1,000 inquiries have been received from physicians, so far only two men have reached the stage of passing physical examinations and being granted United States passports, the *Journal of the American Medical Association* reports. (July 5.) By the middle of July approximately 90 men would be the response to the request, the *Journal* predicted.

This rather ungratifying response is explained as due to frequent statements in medical journals of our own near-shortage of physicians and the apparent imminence of our entrance into the war.

The American Red Cross and the special committee of the National Research Council are continuing their efforts to meet the British request for doctors.

Science News Letter, July 19, 1941

PUBLIC HEALTH

No Ground for Alarm About National Health

EVEN though the percentage of rejections for military service under the Selective Service Act is much higher than during 1917-1918, "there is no ground for alarm about our national health," statisticians of the Metropolitan Life Insurance Company declare. (*Statistical Bulletin,* June).

"The death rate is the lowest on record and the longevity is at its peak," they declare.

"Longevity among American wage-earners and their families, as measured by the average length of life, very nearly attained the 63-year mark at the beginning of the present decade."

Longevity among this group has improved steadily every year during the past decade, it is pointed out.

Figures on military rejections today and during the first World War are "for the most part not comparable," the statisticians point out, because of the difference in conditions under which the men are examined. Because we are still at peace, the Army can afford to make its standards higher and to take more time for examinations to weed out men unlikely to withstand the mental as well as the physical strain of war.

"Moreover, the chief cause of rejection for standard insurance at these ages is overweight, but only a few of these—the very obese—are ineligible for any form of insurance. Heart disease or abnormality is the next leading cause of rejection for standard insurance among men of draft age, but well in excess of 40% of this group are eligible for substandard insurance."

Science News Letter, July 19, 1941

PHYSICS—BOTANY

Radioactive Rubidium Is Tool for Studying Life

RUBIDIUM, a chemical element closely related to the more common sodium and potassium, can be made to give off rays like those of radium. In this form it is a useful tool for studying the life processes of living plants, a research trio of the University of California have discovered.

Dr. August Helmholz, instructor in physics, Dr. Charles Pecher, research fellow in the Radiation Laboratory, and Dr. P. R. Stout, junior chemist in the division of plant nutrition, have made these studies. (*Physical Review,* June 1).

Potassium is an important element in plant nutrition. With the rays from the cyclotron, or "atom-smasher," it can be produced in a radioactive form. Then, fed to plants, its progress may be followed by the rays that it gives off as it reaches different parts. However, radioactive potassium quickly decomposes. Half of any amount is gone within 12 hours, and this has imposed a limit to its use.

Rubidium, however, is so similar chemically to potassium that it may be used in its place. Its radioactive form lasts for 19 days. Another advantage is that very minute quantities may be made with high activity, but it can also be produced in relatively large amounts.

In preparing radioactive rubidium, these modern alchemists start with an entirely different element, strontium. Under the influence of 16 million volt atomic bullets from the cyclotron the transmutation into rubidium takes place.

Science News Letter, July 19, 1941

METEOROLOGY

Weather Bureau Asks Ships For Radio on Hurricanes

DESPITE wartime hush-hush on most ships' radios, the U. S. Weather Bureau is urging ships at sea in the southern North Atlantic, Carribean, and Gulf of Mexico to report by wireless when they encounter a hurricane or find themselves in the neighborhood of one. This information is valuable to other ships, as well as to islands in the path of such a storm, frequently making possible the saving of lives and property, the Weather Bureau points out.

Messages may be sent in the international code which has been devised for such purposes, or in plain language. Ships need not disclose their identity; omission of signature is indeed preferred.

One significant addition has been made to the request, which is published in the Navy Department's *Hydrographic Bulletin*. The last sentence in the column, printed in boldfaced type, reads: "Ships of the United States Atlantic Fleet will not make weather reports except as authorized by the Commander-in-Chief, U. S. Atlantic Fleet."

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PHYSIOLOGY

Discover Age at Which Thyroid Gland First Works

THE EARLIEST age at which the thyroid gland, one of the body's most important organs, starts functioning has been discovered by Dr. Aubrey Gorbman and Dr. Herbert M. Evans, of the Institute of Experimental Biology at the University of California.

The thyroid is a U-shaped gland in the neck which, when enlarged, causes the swelling known as a goiter. This gland controls or regulates many body functions, acting through its hormone which contains iodine. Using tagged atoms of radioactive iodine from the cyclotron, the California scientists found that in frogs, the thyroid gland starts using iodine to make this hormone, and therefore to perform at least some of its important functions, when the frog is still in the tadpole stage and its thyroid gland consists of as few as 60 tiny cells. No iodine was discovered in the younger, just hatched tadpole larvae, indicating that their thyroid glands had not yet started functioning.

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AERONAUTICS

Need for Civil Aeronautics Continues Even During War

CAB Member Cites Readiness To Participate in Military Maneuvers, Maintenance of Rapid Transportation

EVEN with all the military importance of aviation, war does not eliminate need for civil aeronautics, G. Grant Mason, Jr., member of the Civil Aeronautics Board told the Franklin Institute recently.

In support of this contention, he cited three main reasons: First, the readiness and ability of civil aviation enterprises to participate directly in military maneuvers, as in the invasion of Norway. "On that occasion," he declared, "Junker airplanes of the Lufthansa airline were used side by side with the military planes of the Luftwaffe to land the German army of occupation at Oslo and other points."

The second factor mentioned is the "maintenance of regular, rapid and reliable transportation." As an indication of the importance of this factor, he cited the 55% increase in passenger traffic in 1940. (In the first 5 months of this year, there was a gain of 29% over the 1940 period attributable in large part to the greatly increased rate of business activity due to national defense requirements.) He then stated, "If this economically sound trend is to continue, our airlines must have a great many additional airplanes—and that is most improbable unless it can be shown that new transport airplanes for the airlines are at least as useful to our national defense and the nation's welfare as transferring those same airplanes to our Army or Navy or exporting them for use on foreign owned airlines."

The third is "the spread of propaganda and subversive preparations for any subsequent open aggression."

In regard to the last factor Mr. Mason recalled that in 1938 he had said in a lecture that "The time has passed when it can be doubted that aviation is being used by Germany and Italy as one of the means of winning vast trade markets and perhaps gaining a political foothold to the south of us. It is impossible for the United States longer to maintain faith in the security of geographical isolation, an isolation which no longer has any reality; for, with the infiltration into South America of European aircraft and airmen, the natural barrier of the Atlantic Ocean offers little or no protection."

Since then, he stated, about the only changes have been the opening of an Italian South Atlantic line replacing the German one, and the opening of new airlines within South America by Germany. However, he expressed the opinion that "gradually our national interest in aviation and defense was replaced by a hemisphere interest. We know now that to defend ourselves successfully, we must also help defend our friendly neighbors."

Apparently this hemisphere interest in aviation and defense has become mutual. Senator Mead of New York on July 8, 1941, made public a letter from Under-Secretary of State Sumner Welles, stating that Nazi-controlled commercial air services have been abandoned in Colombia, Peru and Bolivia and have been curtailed in Ecuador.

Mr. Mason warned against any curtailment of American civil aviation.

"Certainly," he declared, "if our civil aviation has been a backlog and a reservoir all these years, the national defense should consume whatever parts of it may be needed along with the military forces in the protection of our country. At such a time any part of civil aviation which is interfering with national defense should be suspended or abolished. In my opinion, however, this civilian industry, which is capable of self-support, does not need to be militarized into additional expenses for our taxpayers in order to meet threats to our security. American civil aviation, as a decisive factor in world affairs, should be given the fullest opportunity to stand side by side with our military forces as partners in national and hemisphere defense."

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A new *electric fence* based on a "single impulse" principle has been devised for livestock control at the University of California.

● Earth Trembles

Information collected by Science Service from seismological observatories and relayed to the U. S. Coast and Geodetic Survey resulted in the location of the following preliminary epicenters:

Thursday, July 3, 2:11.5 a.m, EST

Off coast of Chile, south of Santiago. Latitude 35 degrees south. Longitude, 72 degrees west. Severe shock.

Thursday, July 10, 8:16.3 p.m., EST

In Pacific Ocean 200 miles off coast of Colombia. Latitude, probably near 3 degrees north. Longitude, 82 degrees west. Sharp shock.

Stations cooperating with Science Service in reporting earthquakes recorded on their seismographs are:

University of Alaska, College, Alaska; Apia Observatory, Apia, Western Samoa; University of California, Berkeley, Calif.; Dominion Observatory, Ottawa; Dominion Astrophysical Observatory, Victoria, B. C.; The Franklin Institute, Philadelphia; Harvard University Observatory, Harvard, Mass.; University of Hawaii, Honolulu; Magnetic Observatory of the Carnegie Institution of Washington, Huancayo, Peru; Massachusetts Institute of Technology, East Machias, Maine; University of Michigan, Ann Arbor, Mich.; Manila Observatory, Manila, P. I.; Montana School of Mines, Butte, Mont.; Montana State College, Bozeman, Mont.; Nebraska Wesleyan University, Lincoln, Nebr.; Pennsylvania State College, State College, Pa.; Phu Lien Observatory, near Hanoi, French Indo-China; Seismological Observatory, Pasadena, Calif.; University of Pittsburgh, Pittsburgh, Pa.; University of South Carolina, Columbia, S. C.; University of Utah, Salt Lake City, Utah; Utah State Agricultural College, Logan, Utah; U. S. Weather Bureau, University of Chicago; Williams College, Williamstown, Mass.; Zikawei Observatory, near Shanghai, China; observatories of the Jesuit Seismological Association at Canisius College, Buffalo, N. Y.; Fordham University, New York City; Georgetown University, Washington, D. C.; St. Louis University, St. Louis; St. Xavier College, Cincinnati, and Weston College, Weston, Mass.; observatories of the U. S. Coast and Geodetic Survey at San Juan, P. R., Sitka, Alaska, Tucson, Ariz., and Ukiah, Calif.

MEDICINE

High Test Gasoline May Cause Disease

HIGH test gasoline, benzol and similar industrial solvents and cleaning agents are capable of causing a cancer-like disease of the blood, myeloid metaplasia, a three-man research team, Dr. Rulon Rawson, Dr. Frederic Parker, Jr., and Dr. Henry Jackson, Jr., representing the Harvard University Medical School and several Boston hospitals, announce (*Science*, June 6). The heavy, tarry fractions of petroleum have long been known to be cancer-causers, but the lighter distillates have not hitherto been indicted as the cause of this disease.

Apparently it takes very prolonged exposures to produce the malady, for the three investigators state that one of their cases was of a man who worked with benzol for five years in a shoe factory, another with high test gasoline in a machine shop for 26 years, a third with paint remover for 15 years, and so on.

They emphasize also that it is quite likely that some patients with this ailment will give no history of such exposure, "and it is reasonably certain that many so exposed will escape unscathed."

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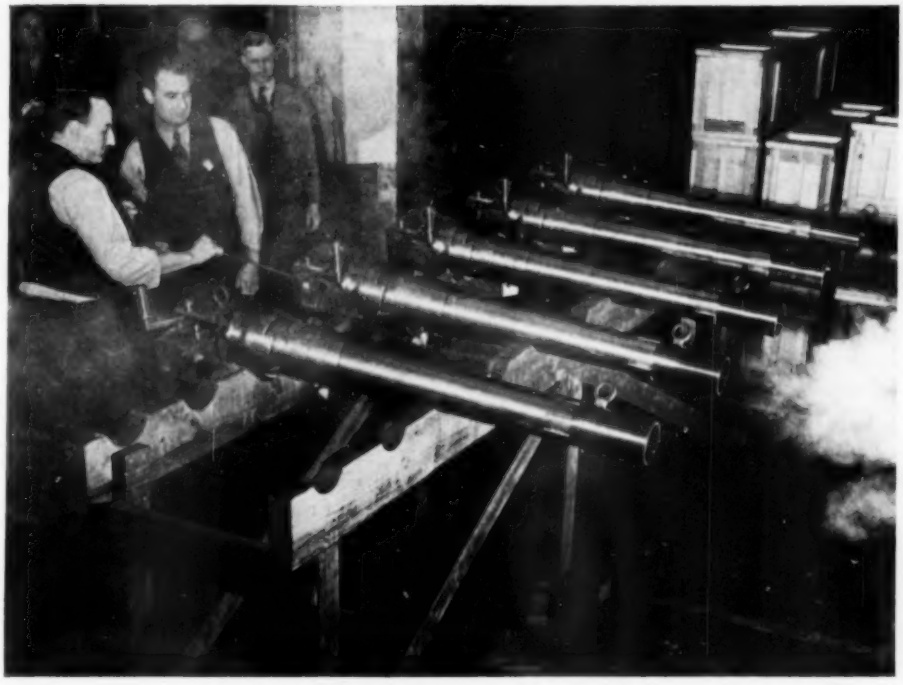

TEST OF A GUN IS IN THE SHOOTING

America may not be turning plow shares into swords, but here at the Erie, Pa., General Electric plant, 75-millimeter pack howitzers are being turned out on an assembly line by men and machines formerly devoted to making electric motors for street cars. Final test of this "blitz" weapon is the firing of three rounds of primers in empty shell cases to check the breech mechanism.

MEDICINE

Vitallium Plates Used To Repair Skull Defects

Alloy of Chromium, Nickel and Cobalt, First Proposed For Dental Use, Makes the Strongest Repair Known

MANY a soldier came home from the last World War with a metal plate in his head where a piece of skull had been shot away or so crushed that it had to be removed. Soldiers and civilians similarly injured in the present war will have their skull defects repaired with vitallium plates, it appears from a report by Dr. Fred W. Geib, of Rochester, N. Y. (*Journal, American Medical Association,* July 5.)

Vitallium, an alloy of chromium, nickel and cobalt at first proposed for dental use, "makes the strongest and least complicated plastic repair of the skull known," Dr. Geib declares in his report.

"It is rigid, stronger than bone, noncorrosive and inexpensive and requires a much less complicated cranioplastic operation than any in use at the present time. The patient can be back at work on heavy duty within three weeks after the operation."

Dr. Geib's patients were not wounded soldiers but civilians, one of whom had osteomyelitis of the skull following industrial injury. The other two had brain hemorrhages which caused such pressure that pieces of skull had to be removed to save their lives. Grafts of bone from the patient's ribs and cartilage have recently been used to replace the missing skull piece in such cases. Metal plates have proved unsatisfactory and have been abandoned.

The vitallium plate which Dr. Geib recommends is cast according to a pattern of the defect in the patient's skull. Slots are cut into it from the outer edge, so that it can be bent to fit the skull. Lugs extend over the edges of the skull and the plate is screwed into the skull through holes in these lugs. The plate for Dr. Geib's fourth patient was made, by the Austenal Laboratories, within two days. The operation of inserting the plate and fastening it to the skull takes about one hour.

The soft tissues beneath the skull grow up around the vitallium plate and through the slots in it, completely incorporating it in a soft, gelatin-like covering. No harmful conditions in either skull, plate, or tissues under it have been found in any of the patients, the first of whom has now had his plate in place for two years. After the death of one of the patients from another condition, his skull was carefully examined and the findings showed how the tissue had incorporated the vitallium plate and was holding it firmly in position as if it were part of the tissue itself.

Vitallium has been used within the last three years in other types of bone surgery by two other groups of surgeons.

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VITAL STATISTICS

Suicide Called Major U. S. Social Problem

WITH 18,000 suicide deaths a year, and probably 100,000 more suicides that fail, self-destruction is a major social and medical problem in the United States, decares a statistician of the Metropolitan Life Insurance Company.

More women than men attempt suicide, but men are three times as successful at it as women. Partly explaining this "striking sex difference" is the fact that almost three-fourths of the women use poisoning, which is "the least efficient method." It is not yet known whether women pick less effective methods because they are less determined to die, or whether they choose methods most accessible to them, or methods that seem less violent.

"It is a melancholy thought," says this statistician, "that consideraby more than 100,000 people in this country each year find life so hopeless and cheerless that death seems preferable."

Charging that the effort by social and medical agencies to prevent suicide has hardly been in proportion to the size of the problem, he advocates a well-organized and concerted program to lessen needless loss of life.

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EUGENICS

Suggests an Imaginative NMA —Mothers Administration

Deficit of Children in Responsible Households Termed Menace to Foundations of National Life

AN IMAGINATIVE NMA—National Mothers Administration—to lead America's working mothers toward better employment status, was suggested by Dr. Frank Lorimer, professor of population studies of American University.

Dr. Lorimer, speaking before the American Eugenics Society in New York, declared that there is a deficit of births in families which plan their affairs with a high sense of responsibility. He outlined ways by which the United States might ease the financial worries for young couples who fear to have children because they know that the added expense must mean a lower standard of living.

Declaring that the deficit of children in responsible households "menaces the foundations of our national life," Dr. Lorimer suggested remedies:

1. Increase opportunities for gainful employment compatible with motherhood.

2. Develop measures which will relax some of the pressures which now tend to force married women to seek gainful employment.

Women with children might be given preference in teaching appointments, he said, and school administrators might well consider psychological value for the children of this type of teacher. Dr. Lorimer also suggested that school administrators reduce hours of service for teachers, so as to divide the teaching load and strain on individual teachers.

"Similar developments would be possible," he added, "in many other fields—under the leadership of an imaginative NMA, or National Mothers Administration."

To encourage larger families, he also suggested increasing tax rates, especially in middle income brackets, to finance an adequate social program soundly. About one-fourth of this tax, he said, should be cancelled for each dependent child, up to income levels at which an additional child does not substantially reduce the level of family living.

Just as earlier Americans took the radical step of making public education available to all, now public provisions for mothers and children should, so far as possible, be for all families, Dr. Lorimer advised. All children should have the advantage of the school lunch program, he said, citing an example. This would raise the nutritional level of the nation, and increase food consumption.

To help in stabilizing economic conditions for families when war ends, and to avoid the unguided building boom after the first world war, which over-shot the market demand and helped bring about the 1929 depression, Dr. Lorimer warned that post-war housing should be developed on a logical basis. The United States, he foresees, will ultimately be called upon to provide materials for rebuilding Europe's wreckage, and the tremendous need will spur industry to high production. Home building will then be likely to increase.

In this post-war housing situation, Dr. Lorimer recommended reducing labor costs by paying workers on a fair yearly basis, and formation of new industrial unions, if the old craft unions will not cooperate.

He also recommended subsidies for groups justifying them, such as the Swedish system of reducing monthly rents in proportion to the number of children in the family.

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From Page 39

so that the wearer can put her hands into them without effort. That sounds lazy. But we want to leave workers free to use their energy for work."

To go with the factory work suit, a pink and white visored cap has been designed. Accidents have been known to occur when a girl's hair caught in revolving machines, and safety is one basic idea back of all the government's new clothes. Dusts of various sorts are another reason for wearing caps in some factory jobs.

As scientific features of the pink and white cap, Miss Scott pointed out stitching which stiffens the visor without need for starch, and ease with which the band around the back unbuttons, allowing the cap to flatten out for laundering.

Important fashion feature of the visored cap is height provided toward the front. That is to accommodate delicate curls and pompadours without crushing.

A second style for industry already completed is a jumper slack suit. As originally made by Miss Smith, this suit is an attractive blue, with blue and white striped underblouse. Jumper advantages are these: A worker can vary the blouse, using long or short sleeves for cold or warm weather. And a factory might like the idea of using different colored blouses as a badge of different types of workers.

Curiously enough, America's farm wives and daughters have never before had sets of work clothes designed for their especial needs for efficiency plus becomingness. Not until Miss Scott tackled the problem. Miss Scott did not have to visit farms to study farm women at work. She came from a midwestern farm herself.

First of all, she has designed what she calls a Coverette, a basic work suit likely to be useful for milking, feeding chickens, working the garden. The first Coverette to take a public bow is of green and white seersucker.

Miss Scott explained its important features: Easy to put on and take off, even in sticky weather. Pockets, of course—three roomy patch pockets. Trouser legs which can swing loose for coolness or be buttoned, if work requires, into a neat cuff. Plenty of fullness at the knee is provided, even when trousers are cuffed in.

A farm woman dons a Coverette by stepping into the trousers, putting her arms through the short and roomy sleeves and pulling back the ties attached to the surplice waist. She ties one bow—or fastens the strings with a button or snap—and, as Miss Scott puts it, "she is ready to go."

A low rolling collar, a feature of the Coverette, was particularly mentioned by Miss Scott. It is a becoming sort of collar, and if there is any one thing that Scott and Smith designers are emphatic about, it is that women's work clothes should be becoming. An outfit of soft green seersucker has been banished to the laboratory closet, because nice as it looks on the hanger the collar isn't becoming. The public will never see that one.

One home economist who visited a war factory confirmed the designers' opinion that ugly work clothes are bad defense psychology. She found girls wearing men's style overalls, and she reported that if it made a visitor so depressed to look at them it must be bad also for morale of the workers.

For farm millinery, Miss Scott got an idea from her Midwestern childhood, when some farm women wore slat bonnets. She can recall her own problems in milking, when she had to protect her hair from the cow's tail and keep a hat from being brushed off, and when she needed a hat or bonnet for sun. No wonder slat sunbonnets were worn for many a day. They stayed put and had other good features.

"The old slat bonnet," said Miss Scott, "had slips of cardboard stuck into casings around the head and there was a limp tail of goods hanging down to the shoulders. The cards could be taken out to launder the bonnet, and no starch was needed. The tail was a good sun protector, but hot.

"I thought we might put the cardboard slats in the top only and run them the opposite way, and we might shorten the flap so that it protects the neck without swathing it."

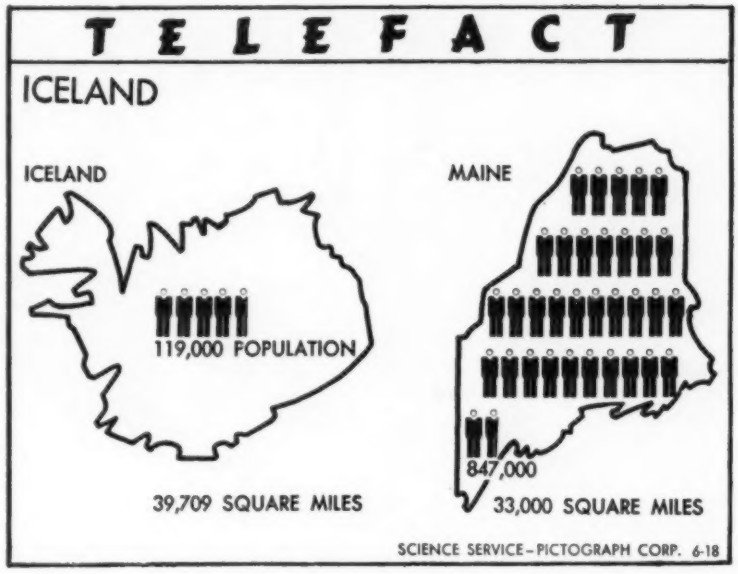
The 1941 sunbonnet flattens into a T for laundering. It can be folded neatly and tucked into a pocket when not wanted.

Even more striking is a Chinese hat for farming.

A second farm suit for heavy work, designed in blue slacks with a jacket that hangs outside, emphasizes coolness and comfort. The loose jacket makes reaching easy in apple picking or hanging clothes. Detachable long sleeves are a handy accessory. They are for berry picking, or other scratchy jobs, or to protect the arms from sun or cold.

Even shower-proofs for farm workers have been thought of. Using a water-repellent cotton fabric, of which several are on the market, the government's clothing experts have evolved a soft dark green suit which has a number of attachments.

Basic unit of this shower-proof garb is a cover-all apron skirt useful for wash day and many other farm and home jobs. Water rolls off and the fabric does not stain. The apron is designed with princess fit and buttons down the front. A jacket of the green goods provides protection for outdoor chores in bad weather. A hood that might be snapped to the suit is another handy item.



Even leggings go with this cotton water-repellent outfit, as designed by Miss Scott. Remembering how she had seen many a farmer's wife wrap a long denim apron around her skirt and stockings to work in dewy grass or in vines that stain—such as tomatoes—Miss Scott evolved shaped leggings of the green cotton goods. You step in and pull up front slide fasteners, and the leggings stay put, for, explained Miss Scott, elastic under the shoes and above the calf of the leg holds them in place.

A housedress with butterfly shoulders is nearly ready for its debut. Easy to make and easy to wear and launder, the government's style designers are aiming to produce housedress designs that the average home sewer can make—and make well—in a day.

Beltsville has just begun to influence American fashions. Watch it!

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GEOGRAPHY

With Iceland U. S. Assumes Care of First Known Geyser

IN TAKING over protection of Iceland "for duration," the United States assumes temporary custody of more than an advanced outpost against Nazi aggression. This government also acquires responsibility for the original or type specimen of all the geysers in the world—of which this country already possesses in its own right by far the mightiest and most, in Yellowstone National Park.

When the earliest settlers in Iceland, more than a thousand years ago, first explored the interior of their new home, they found in the midst of a barren plain an awesome hot spring that at irregular intervals hurled a column of seething water more than a hundred feet into the air. They called this the "geysir," which means the gusher.

Near the Great Geysir are a number of lesser geysirs, as well as a huge non-erupting steam spring that keeps making flopping, slopping noises. These suggested the name "strokr," which is Icelandic for "churn." The word "geysir," modified to "geyser," has been accepted as the name for the similar periodic hot springs in the Yellowstone region, as well as in New Zealand, which is the home of the only other important geyser group in the world. About 1914 the Great Geysir stopped eruption, but it resumed activity in 1935. (*Turn page*)

Books

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It was in Iceland that the famous German chemist, Dr. Robert W. Bunsen, whose name is attached to the Bunsen burner familiar in all laboratories, evolved his theory of geyser action, which is still accepted in a modified form. Bunsen visited Iceland and worked out his theory some years before the discovery of the Yellowstone geysers in the early 1870's.

Iceland is always thought of as a Viking colony, but there was a small colony of Irish settlers there when the first Norse settlers came, about 850 A.D. From Iceland went the hardy souls who colonized Greenland under Eric the Red, who in turn was father of Leif the Lucky, first recorded visitor to North American shores, nearly half a millenium before Columbus. Thus in a way the American bluejackets and marines now in Iceland are only making a long-overdue return visit.

There are Icelanders in the United States, but their settlement is much more recent than the short-lived colony which Leif planted on an unknown part of the North American coast. One group of them lives as fishermen on an island in Lake Superior, another as farmers in North Dakota.

The preference of Icelandic settlers in this country for a severe climate is often a subject for remark. As a matter of fact, they live in a harder climate here than their fathers were used to in the "Old Country," for despite its chilly name Iceland's climate is to be described as raw and wet, rather than cold. It lies almost entirely south of the Arctic Circle, and its average temperature is kept higher than might be expected by the Gulf Stream. About one-eighth of the island is covered with glaciers and snowfields. By contrast, Iceland also has some of the world's mightiest volcanoes.

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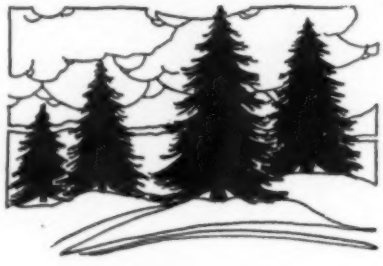
Sheep eat a more varied diet of grasses and weeds than do cattle.

FORESTRY

NATURE RAMBLINGS
by Frank Thone



Far Transplanting

WESTERN Hemisphere help is going to war-menaced Iceland in a hitherto unreported form. Thousands of seeds from two species of evergreen trees, gathered high on Colorado mountains, have been sent to Hakon Bjarnason, chief of the Iceland Forestry Service, by Jacob Jauch of the U. S. Forest Service. The story of the sending of the seeds is told in the July issue of the *Journal of Forestry*.

The two tree species represented are corkbark fir and Engelmann spruce. Both are high-altitude trees, well suited for the severe weather conditions that prevail on the upper levels of the Rockies. Mr. Jauch states that he awaits with interest the results of this experiment to see if these trees will thrive in sub-arctic Iceland. Although the island republic lies just south of the Arctic Circle, he points out, the climate along its southern coast is so modified by warm ocean currents that it is actually no more severe than that of New York, and materially milder than the climate of the high Rockies.

Iceland once supported a much better timber growth than it now does, Mr. Bjarnason has written to his friend here. While the island was directly controlled by Denmark, it was pretty badly exploited and lost most of its trees and a considerable part of its best pasture land. Since Iceland declared its independence, acknowledging only the personal sovereignty of the Danish crown, its affairs have been better managed and efforts are being made to conserve and restore its natural resources.

So hard-pressed are the Iceland herdsmen, however, that constant vigilance has to be exercised to keep them from turning their sheep loose in growths of young birch trees, which the Iceland Forestry Service wants to grow up into usable timber. A good deal of Mr. Bjarnason's work has to do with maintaining fences around his woodlands, and he is kept constantly on the move all summer long, either on ponyback or in a six-year-old American-made car.

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MEDICINE

Horse "Sleeping Sickness" Breaks Old Boundaries

THE old geographic boundary of the Appalachian mountains, which was supposed to separate the eastern from the western types of equine encephalomyelitis, popularly called "horse sleeping sickness" and known to have attacked humans as well as horses, has been broken, if it ever existed.

The virus of the eastern type of this horse plague has been discovered in the brain of a horse killed by this disease in the Boca Chica flats of Texas, Raymond Randall and Ervin A. Eichhorn, of the Army Veterinary School, Army Medical Center, Washington, D. C., report. (*Science*, June 20.)

An outbreak suspected of being equine encephalomyelitis killed 60 other horses recently in that same area.

Vaccines for protection against this horse plague exist, but are specific, in that the appropriate vaccine must be given to protect against eastern or western type of the disease. Discovery of the eastern type as far west as Texas is therefore important if protective vaccination is to be effective.

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● RADIO

Thursday, July 24, 2:45 p.m., EST

On "Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Homer L. Shantz, of the U. S. Department of Agriculture, will discuss "Forest Holidays."

Listen in each Thursday.

•First Glances at New Books

Additional Reviews On Page 48

NUTRITION

NUTRITION AND THE WAR—Geoffrey Bourne—*Cambridge (Macmillan)*, 126 p., $1. Written for British readers, who acutely need information about food and nutrition, this simple and clear book may also be used as a guide by Americans who are begining to realize the importance of nutrition for defense. The tables giving the nature and composition of various foodstuffs have the great advantage of giving these facts in terms the housewife can understand. For example, one finds tea biscuits and jam tarts in the list as well as the fruits and vegetables, and besides giving some figures on amounts in each food of protein and carbohydrate and the like, the author rates the foods as good, very good, fair, and so on, as sources of vitamins, proteins, and other food constituents.

Science News Letter, July 19, 1941

MEDICINE

YOUTH LOOKS AT CANCER, A Text Prepared for Colleges, Preparatory Schools, and High Schools—*Westchester Cancer Comm.*, 55 p., illus., 75c. Written with the idea that in the field of cancer control as in many other health fields, education in the schools will be carried into the homes with valuable results.

Science News Letter, July 19, 1941

ZOOLOGY—PHYSIOLOGY

THE COMPARATIVE PHYSIOLOGY OF RESPIRATORY MECHANISMS—August Krogh—*Univ. of Penn. Press*, 172 p., illus., $3.

Science News Letter, July 19, 1941

BIOLOGY

SPERMATOZOA AND STERILITY, A Clinical Manual—Abner I. Weisman—*Hoeber*, 314 p., illus., $5.50.

Science News Letter, July 19, 1941

MARINE BIOLOGY

ISLAND HOLIDAY—Alice Wright—*Stokes*, 296 p., illus., $2. The story of a group of young folks who went out as assistants on an oceanographic expedition. A great deal of information about marine biology and kindred subjects is dispersed through the easy, chatty narrative.

Science News Letter, July 19, 1941

BIOLOGY

LIFE SCIENCE, Based on High School Biology—Ralph C. Benedict, Warren W. Knox and George K. Stone—*Macmillan*, 682 p., illus., $2. A text for use in high schools, by three well-known biological educators. Particular attention is given to the significance of biological phenomena in human beings, and in the plants and animals of his immediate environment.

Science News Letter, July 19, 1941

PALEOBOTANY

THE UPPER TRIASSIC FLORA OF ARIZONA—Lyman H. Daugherty and Howard R. Stagner—*Carnegie Inst. of Washington*, 108 p., 34 pl., $1.25 paper, $1.75 cloth. This flora seems to have been especially rich in ferns and cycads, although there are at least a few conifers and angiosperms.

Science News Letter, July 19, 1941

PALEOBOTANY

A MIOCENE FLORA FROM SHANTUNG PROVINCE, CHINA; Part I, Introduction and Systematic Consideration; Part II, Physical Conditions and Correlation—Hsen Hsu Hu and Ralph W. Chaney—*Carnegie Institution of Washington*, 147 p., 57 pl., $3.25 paper, $3.75 cloth. Descriptions and excellent photographic illustrations of a most interesting fossil temperate-zone flora from northern China, including such familiar forms as birch, willow, hickory, oak and elm.

Science News Letter, July 19, 1941

PSYCHOLOGY

HUNGER FOR WHOLINESS, MAN'S UNIVERSAL MOTIVE—Thomas H. Howells—*World Press*, 307 p., $3. A philosophic discussion by the associate professor of psychology at the University of Colorado.

Science News Letter, July 19, 1941

HISTORY—ECONOMICS

THE FIGHT FOR THE PACIFIC—Mark J. Gayn—*Morrow*, 378 p., $3. One of America's foreign correspondents, a man who was born and grew up in the Far East, gives historic background of the situation there, and analyzes the present situation of Far Eastern prizes and America's stakes in Asia. "The Pacific Ocean today," writes Mr. Gayn, "is the setting for a bitter and portentous game of power politics."

Science News Letter, July 19, 1941

PHILOSOPHY

ELEMENTARY LOGIC—Willard Van Orman Quine—*Ginn*, 169 p., $2.25. A textbook from Harvard University.

Science News Letter, July 19, 1941

BOTANY

THE FLOWER FAMILY ALBUM—Family Histories by Helen Field Fischer and portraits by Gretchen Fischer Harshbarger—*Univ. of Minn. Press*, 130 p., $2.50. A sketch-book of flower families. Each family is depicted in a page of excellently done line drawings of representative genera, with a facing page of interesting description and comment. A beginner making intelligent use of this book will not only become acquainted with plants; he will get an understanding of systematic botany.

Science News Letter, July 19, 1941

PSYCHOLOGY

THE FACTORS OF THE MIND, An Introduction to Factor-analysis in Psychology—Cyril Burt—*Macmillan*, 509 p., $5. The author, who is professor of psychology at the University of London, disputes the idea that factor-analysis is abstruse and too specialized for any but advanced mathematicians, the dubious hobby of an esoteric school. He declares it to be "merely a refinement of a simple and very ordinary logical procedure." To aid the general reader, he has put in smaller type the "side-issues", supplementary illustrations and interpolated proofs, and suggests that these sections, at any rate on first perusal, be skipped or skimmed.

Science News Letter, July 19, 1941

MILITARY SCIENCE

AIR RAID PRECAUTIONS—Reprinted by Permission of the Controller of His Britannic Majesty's Stationery Office—*Chemical Pub. Co.*, 257 p., $3. The publishers have done their country a real service in bringing out this, the first American edition of a book that, in these troubled times, has (regettably) a decidedly practical value even on this side of the ocean. It is a complete manual for ARP workers, covering all phases, from organization of basic personnel to details of combatting incendiary fires and gas decontamination.

Science News Letter, July 19, 1941

BIOGRAPHY

THE STORY OF CLARA BARTON OF THE RED CROSS—Jeannette Covert Nolan—*Messner*, 281 p., illus., $2.50. Inspirational biography dramatizing the life of the founder of the American Red Cross. A living story which will background the present activity of that great organization.

Science News Letter, July 19, 1941

•First Glances at New Books

Additional Reviews On Page 47

PSYCHIATRY

A SHORT HISTORY OF PSYCHIATRIC ACHIEVEMENT—Nolan D. C. Lewis—*Norton*, 275 p., $3. Not a complete history of psychiatry but an analytical review showing the development of modern trends of thought on the subject and where they are leading. Since one of these trends, in American psychiatry at least, is to increase the general physician's knowledge of psychiatric problems, this book might well be recommended to physicians generally as well as to those specializing in psychiatry.

Science News Letter, July 19, 1941

ECONOMICS

STATISTICAL ATLAS OF SOUTHERN COUNTIES, Listing and Analysis of Socio-Economic Indices of 1104 Southern Counties—Charles S. Johnson and others—*Univ. of North Carolina Press*, 355 p., $4. Of interest to sociologists, economists, educators and others concerned with problems of the South.

Science News Letter, July 19, 1941

SOCIOLOGY

THUS BE THEIR DESTINY, The Personality Development of Negro Youth in Three Communities—J. Howell Atwood, Donald W. Wyatt, Vincent J. Davis and Ira D. Walker—*Amer. Council on Education*, 96 p., 75c. Prepared for the American Youth Commission.

Science News Letter, July 19, 1941

PHOTOGRAPHY

THE AMATEUR PHOTOGRAPHER'S HANDBOOK—A. Frederick Collins; revised by Aaron Sussman—*Crowell*, 402 p., illus., $2.50. A book of useful information for the camera enthusiast by the author of "how-to-do-it" books in a wide variety of fields.

Science News Letter, July 19, 1941

MEDICINE

A MANUAL OF ALLERGY, For General Practitioners—Milton B. Cohen—*Hoeber*, 156 p., $2. Technical information for the family physician that will allow him to keep up with the allergic procession.

Science News Letter, July 19, 1941

ETHNOLOGY

INDUS VALLEY PAINTED POTTERY—Richard F. S. Starr—*Princeton Univ. Press*, 106 p., illus., $3.50. Studying designs on painted ware of the Harappa culture, Dr. Starr finds as one point of importance that many motifs are common to Harappa and the prehistoric world west of India. These are pronounced an inheritance from more ancient cultures of Iran and the Tigris-Euphrates Valley. Detailed drawings of 174 sherds and design elements enable the reader to gauge the variety and styles of decorative design.

Science News Letter, July 19, 1941

HISTORY

BOUNDARIES, POSSESSIONS, AND CONFLICTS IN CENTRAL AND NORTH AMERICA AND THE CARIBBEAN—Gordon Ireland—*Harvard Univ. Press*, 432 p., maps, $4.50. A scholarly and factual account of international boundary disputes and adjustments and treaty relations, by a professor of law. In a previous volume, Prof. Ireland similarly reviewed South America's boundary history. The history of Caribbean and Atlantic islands comes in for special attention—important material now, in the light of naval and air base arrangements.

Science News Letter, July 19, 1941

EXPLORATION

THE ANTARCTIC OCEAN—Russell Owen—*Whittlesey House*, 254 p., illus., $3. Highlights of the discovery voyages of daring men who have gone down to the Far South for trade, adventure, science or just glory. Mr. Owen has selected for his book those particular voyages that definitely added to knowledge of the Antarctic, and he has thoughtfully provided good maps along with his illustrations to enable the reader to follow the voyagers.

Science News Letter, July 19, 1941

MEDICINE

PHOTODYNAMIC ACTION AND DISEASES CAUSED BY LIGHT—Harold Francis Blum—*Reinhold*, 309 p., illus., $6. Too technical for lay reading but medical scientists and workers in related fields will welcome this monograph which both reviews and attempts to synthesize various phases of work on this interesting subject.

Science News Letter, July 19, 1941

EDUCATION

EDUCATION AND THE BOY SCOUT MOVEMENT IN AMERICA—Edwin Nicholson—*Teachers College, Columbia Univ.*, 117 p., $1.60. Based on the author's experiences during ten summers as Boy Scout campmaster and subsequent study of educational theory.

Science News Letter, July 19, 1941

PSYCHIATRY

CONDITIONED REFLEXES AND PSYCHIATRY—Ivan Petrovitch Pavlov; W. Horsley Gantt, trans. and ed.—*International Pub.*, 199 p., $4. (Lectures on Conditioned Reflexes, Vol. II.) This volume contains lectures and some unpublished papers covering investigations by the great Russian physiologist during the last years of his life, a biographical sketch of those active years and a critical evaluation of both the scientist and his work.

Science News Letter, July 19, 1941

GENERAL SCIENCE

JOSE TORIBIO MEDINA, His life and Works—Sarah Elizabeth Roberts—*H. W. Wilson Co.*, 192 p., $1.50. North Americans taking any serious interest in South America's great men cannot go far without encountering Medina, whose 10 or more writing specialties included geography, history, science, bibliography. This well-arranged biography by a librarian takes 86 pages to tell Medina's life story from its many distinctive angles, and 100 pages to give a selected bibliography of his voluminous works.

Science News Letter, July 19, 1941

ARCHAEOLOGY

THE GATES OF DREAMS, An Archaeological Examination of Vergil, *Aeneid* VI, 893-899—Ernest Leslie Highbarger—*Johns Hopkins Press*, 136 p., 8 pl., $3. Explains the author's reasons for his conclusion that Vergil's two Gates of Dreams have historic meaning which has been overlooked. The Gate of Horns he finds to be an Oriental concept of great antiquity, and the Gate of Ivory to be probably a Mycenaean invention.

Science News Letter, July 19, 1941

JUVENILE

REAL HEROES, No. 1—64 p., colored comics, 10 c. per copy, $1. for 12 issues. CALLING ALL GIRLS, No. 1—64 p., colored comics, 10 c. per copy, $1. for 12 issues, *Parents Institute, Inc.* (See *SNL* July 12, 1941.)

Science News Letter, July 19, 1941

RADIO

RADIO ENGINEER'S POCKET BOOK (2d ed.)—F. J. Camm—*Chemical Pub. Co.*, 147 p., $2.50. Though prepared in England, where radio is still called "wireless," this pocket-sized compilation of tables of various data should prove handy to experimenters in the United States.

Science News Letter, July 19, 1941